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EXAMINER	
DUNN, DARRIN D	

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2109	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/687,955	MAY, ROBERT ALVIN	
	Examiner	Art Unit	
	Darrin Dunn	2109	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *04/08/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is responsive to the communication filed on 10/17/2003.

2. Claims 1-44 are presented for examination.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-8, 10-18, 20-28, and 30-42 are rejected under 35 U.S.C. 102(e) as being anticipated by Folkes et al. (USPN 2003/0218982).

5. As per claims 1,11, and 21, Folkes et al. teaches a routing device ([FIG 2A -22]) comprising:

a dynamic routing module -24, operable to be executed at a particular time ([0024], [0026] e.g., backup protocol processor comprises a Backup OSPF-24, i.e., dynamic routing module, assumes control upon failover, i.e., particular time);

a configuration manager (as set forth in the instant application is a device that stores state information much the same as the backup OSPF instance), coupled to a second routing device -21, operable to store configuration information associated with operational characteristics of a

second dynamic routing module -23 associated with the second routing device -21 ([0027],[0029], [FIG 2B- 22] e.g., backup OSPF instance, i.e., configuration manager, stores state information corresponding to the active protocol processor, i.e., second dynamic routing module. This is accomplished via synchronization);

a network information module, operable to store routing information from the second routing device ([0039] e.g., network information module, i.e., LSA database)

wherein said dynamic routing module is executed upon an indication that the second dynamic routing module is no longer operating ([0007, [0026] e.g., the terminology "no longer operating" is interpreted as a failure –OSPF router fails);

wherein said dynamic routing module -24 is configured to operate according to said configuration information ([0027] e.g., backup OSPF instance executes recovery functions and assumes the functionality as the former active OSPF instance).

6. As per claims 2, 12, 22, 32, 34, and 36, Folkes et al. teaches the routing device of claim 1 wherein said routing device routes information for a cluster of network enabled devices ([0008], [0037] e.g., a cluster, i.e., one or more devices, is understood as corresponding to a network. Moreover, the system specifically describes identifying neighbors attached to the network interface, implying messages are routed amongst one or more network enabled devices).

7. As per claims 3, 13, 23, and 37, Folkes et al. teaches the device of claim 1 wherein said dynamic routing module implements an OSPF routing protocol ([0024] e.g., OSPF).

8. As per claims 4, 14,24, and 38, Folkes et al. teaches the device the routing device of claim 1 wherein said particular time is associated with a non-functioning state of the second

dynamic routing module ([0026] e.g., in the event the active protocol processor fails, implying the active OSPF instance is no longer capable of functioning).

9. As per claims 5, 15, 25, and 39, Folkes et al. teaches the routing device of claim 1 wherein said particular time is associated with a predetermined time ([0026] e.g., maintenance, i.e., particular time).

10. As per claims 6,16, 26, and 40, Folkes et al. teaches the wherein said particular time is associated with network traffic ([0018] e.g., TCP failure).

11. As per claims 7, 17, 27, and 41, Folkes et al. teaches a routing device of claim 1 further comprising a communication module ([0005] Hello protocol layer, i.e., communication module, wherein said communication module transmits (sending Hello packets) a hitless restart event based upon an event associated with said execution of said dynamic routing module ([0048], [0049] e.g., a hitless restart is interpreted as corresponding to a seamless initialization of the backup processor while maintaining adjacency among neighbors in the network. In the present case, "Hello packets" are transmitted without interruption as to avoid losing adjacency upon a failover event –[0008] – In the event of network failure the router seamlessly maintains traffic flow without reconfiguring or interrupting traffic.).

12. As per claims 8, 18, 28, and 42, Folkes et al. teaches the routing device of claim 1, wherein at least a portion of said stored configuration information is stored in a device different from said routing device ([FIG 2A] e.g., active OSPF instance –23 is a device different that that of the backup OSPF instance –24, i.e., routing device. According to [0029], the active OSPF instance maintains its current dynamic state, network interface state information, etc).

13. As per claim 10, 20, and 30, Folkes et al. teaches the routing device of claim 1 further comprising a communications module ([0052]-retransmit mechanism) operable to receive a reply from another routing device associated with the receipt of a hitless restart ([0052] e.g., in response to the Hello packets, a response is expected).

14. As per claim 31, Folkes et al. teaches a routing device comprising:

a dynamic routing module, operable to be executed at a particular time ([0024], [0026] e.g., backup OSPF instance -24 i.e., dynamic routing module, assumes control upon failover, i.e., particular time);

a network management module, operable to store routing information from a second routing device ([0039] e.g., network information module, i.e., LSA database).

a program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine at a particular time to perform a method for configuring said dynamic routing module ([0024], [0026] e.g., program storage device, i.e., backup protocol processor, contains OSPF software (executable instructions), which upon a failure or maintenance, i.e., particular time, the backup protocol processor assumes the functions of the former active protocol processor), said method comprising:

storing configuration information for said dynamic routing module, said configuration information associated with operational characteristics of a second dynamic routing module-23 associated with the second routing device-21 ([FIG 2A], [FIG 2B – 222], [0029] e.g., synchronization provides for the mirroring of state information from second dynamic routing module to the backup)

wherein said dynamic routing module is executed upon an indication that the second means for dynamically routing is no longer operating ([0026] e.g. failure of the active protocol processor);

wherein said dynamic routing module is configured according to said configuration information ([([0027] e.g., backup OSPF instance executes recovery functions and assumes the functionality as the former active OSPF instance])

15. As per claim 33, Folkes et al. teaches a routing device comprising:

a dynamic routing module -24, operable to be executed at a particular time ([0024], [0026] e.g., backup OSPF -24, i.e., dynamic routing module, assumes control upon failover, i.e., particular time);

a configuration manager module ([0027],[0029], [FIG 2B- 22] e.g., backup OSPF instance -24, i.e., configuration manager, stores state information corresponding to the active protocol processor, i.e., second dynamic routing module-23. As set forth in the instant application is a device that stores state information much the same as the backup OSPF) operable to configure said dynamic routing module - 24, coupled to a second routing device -21, said configuration module operable to store configuration information associated with operational characteristics of a second dynamic routing module -23 associated with the second routing device -21);

a program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine at a particular time to perform a method for configuring said dynamic routing module ([0024], [0026] e.g., program storage device, i.e., backup protocol processor, contains OSPF software, which upon a failure or maintenance, i.e., particular time, the

backup protocol processor assumes the functions of the former active protocol processor), said method comprising:

storing routing information ([0005], [0039]-OSPF LSA layer) for said dynamic routing module, said configuration information associated with operational characteristics of a second dynamic routing module-23 associated with the second routing device-21 ([FIG 2A], [FIG 2B – 222], [0029])

wherein said dynamic routing module-24 is executed upon an indication that the second means for dynamically routing is no longer operating ([0026] e.g., failure);

wherein said dynamic routing module is configured according to said configuration information ([0027] e.g., backup OSPF instance executes recovery functions and assumes the functionality as the former active OSPF instance])

16. As per claim 35, Folkes et al. teaches a method of routing datagrams (traffic) through a first routing device -22 in a network, the method comprising:

storing configuration information associated with operational characteristics of a second dynamic routing module-23 associated with a second routing device-21 ([FIG 2B-222], [0029],[0037] e.g., active OSPF instance is synchronized with backup OSPF instance via a synchronization interface);

storing routing information from the second routing device -21 ([0029] e.g., network interface state information is synchronized between the first-22 and second routing device-21);

configuring said first routing device -22 according to said configuration information ([0029], [0037], [0040] e.g., synchronizing state information);

selectively routing datagrams through said first routing device at a particular time ([0048], [0051] e.g., datagrams, i.e., message flow, are routed to adjacent neighbors, implying selectivity. If a neighbor is declared down, data is no longer sent to that neighbor, implying a selective process);

wherein said step of selectively routing is performed upon an indication that the second dynamic routing device -21 is no longer operating ([0026], [0048-51], [FIG 3] e.g.,upon failover the backup protocol processor assumes control)

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

18. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

19. Claims 9,19, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Folkes et al (USPN 2003/0218982) in view over Frick et al. (USPN 2004/0001485).

20. As per claims 9, 19, and 29, Folkes et al. teaches a router that transmits a hitless restart upon an event associated with said execution of said dynamic routing module ([0048], [0049] e.g., a hitless restart is interpreted as corresponding to a seamless initialization of the backup processor while maintaining adjacency among neighbors in the network. In the present case, "Hello packets" are transmitted as to avoid losing adjacency upon a failover event). However, Folkes et al. does not teach where another device executes the aforementioned limitations. Frick et al. teaches executing a "hitless restart" by employing a Border Gateway Protocol ([0005] e.g., another device).

Therefore, one of ordinary skill in the art at the time the invention was made would have motivation to utilize Border Gateway Protocol (BGP), as taught by Frick et al., as another device in order to execute a "hitless restart." Folkes et al. specifically provides for the implementation of a BGP level ([0020]); therefore, the disclosed system provides for the capability of providing another means to implement a "hitless restart." Since employing BGP is another means of communicating information to neighboring devices to avoid losing adjacency during a router failover, one of ordinary skill in the art could readily implement BGP over OSPF to maintain adjacency.

20. Claims 43 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Folkes et al (USPN 2003/0218982).

21. As per claim 43, Folkes et al. teaches a routing device comprising:

a control plane –212 comprising:

a dynamic routing module -24 operable to determine a routing path for network data ([0024] e.g., control plane includes a processor running OSPF-24 (operable to determine a routing path). OSPF contains three layers, one of which originates link state advertisements describing its network interfaces and adjacencies [0005])

a forwarding plane -211 comprising:

a routing information module –25-1

one or more forwarding plane executable modules –26-1, 26-N associated with forwarding datagrams to or from a network according to routing information ([FIG 2A –211] e.g., forward tables)

a configuration manager (as set forth in the instant application is a device that stores state information much the same as the backup OSPF instance), coupled to a second routing device -21, operable to store configuration information associated with operational characteristics of a second dynamic routing module associated with the second routing device ([0027],[0029], [FIG 2B- 22] e.g., backup OSPF instance, i.e., configuration manager, stores state information corresponding to the active protocol processor, i.e., second dynamic routing module.);

a network information module, operable to store routing information from the second routing device ([0025] e.g., network information module, i.e., LSA database)

wherein said dynamic routing module is executed upon an indication that the second dynamic routing module is no longer operating ([0026]);

wherein said dynamic routing module is configured to operate according to said configuration information ([0027] e.g., backup OSPF instance executes recovery functions and assumes the functionality as the former active OSPF instance).

However, Folkes et al. does not teach one or more control plane executable modules. Folks et al. does teach that the control plane creates and maintains a look-up table–[0003] e.g., look-up table, control plane executable module, is associated with the routing function) associated with controlling operation characteristics of a routing function.

Therefore, at the time the invention was made, one of ordinary skill in the art would have motivation to provide additional instruction to the control plane. Since the control plane receives static configuration and dynamic information learned from sources in a peer network, it would have been obvious to have provided the creation and maintenance of a forwarding look-up table.

22. As per claim 44, Folkes et al. teaches the device of claim 43 wherein said configuration device configures said dynamic module according to said configuration information configuring said first routing device according to said configuration information ([0029], [0040]);

Conclusion

23. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

6910148 – Router and Routing Protocol Redundancy

2002/0176355 – Snooping Standby Router

2003/0198182 – High-Availability Packet Forwarding Apparatus and Method

2004/0008700 – High Available Method For Border Gateway Protocol Version 4

2004/0090913 – Routing System and Method for Synchronizing a Routing System After Failover

2004/0260825 – Methods $ Apparatus for Distributing & Providing Fault-Tolerance to Routing Protocols.

2005/0265346 – Router and routing Protocol Redundancy

2006/0053231 – Method and Apparatus for Providing Backup Internet Access

EP 1331772 – Method and Apparatus for Facilitating Routing Protocol Redundancy

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Darrin Dunn whose telephone number is (571) 270-1645. The examiner can normally be reached on EST:M-R(8:00-5:00) 9/5/4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached on (571) 272-3687. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DD
05/23/2007

Anthony Knight
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Art unit 2121